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FAMILY ECONOMICS REVIEW is a quarterly report on research relating to economic aspects of family living. It is prepared primarily for home economics agents and home economics specialists of the Cooperative Extension Service.

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FAMILY ECONOMICS REVIEW

ENERGY CONSUMPTION FOR TEXTILES AND APPAREL

by Annette Polyzou¹

Rising energy prices and uneasiness about energy supplies have caused continued concern about energy consumption in all areas of the economy. Energy is consumed both in the production and in the use of textiles and apparel. For assessment of the need and opportunities for energy conservation in this area, two questions are basic: (1) How much energy is consumed in the production of textiles and apparel in the United States in a year? and (2) Which type of fiber—natural or synthetic²—consumes more energy in terms of production, maintenance, and wear-life of a garment? Before discussing these questions, we should understand the relative importance of clothing as an item of consumption and examine trends in consumption of fibers in the United States.

Clothing and shoes comprised only 6.6 percent of personal consumption expenditures during the first three quarters of 1978 (table 1). These items, however, are purchased frequently by individuals and require a great amount of care. The average per person expenditure on clothing and shoes in the first three quarters of 1978 (\$398) was higher than in 1977 (\$376). Half of the increase resulted from a rise in prices and half from increased buying.

During 1975-77, the price level for apparel and upkeep, as measured by the Consumer Price Index (CPI), increased at an annual rate of between 3.7 and 4.5 percent, less than the increase for all items of the CPI (table 2). Preliminary estimates for the first three quarters of 1978 indicate that price increases are lower for 1978 than for any of the previous 3 years.

During the past three decades, consumption of fibers produced from petroleum has steadily

increased, while consumption of other fibers has generally declined (9). During the period 1950 to 1977, U.S. per capita mill use of the natural fibers (cotton, wool, flax, and silk) and the cellulosic synthetic fibers (mainly rayon and acetate), on a per capita basis, generally declined (table 3). Per capita consumption of cotton dropped from 30.9 pounds in 1950 to 14.7 pounds in 1977, wool dropped from 4.2 pounds to 0.5 pound, flax, and silk dropped from 0.1 pound to a negligible amount, and cellulosic synthetic fibers dropped from 8.9 pounds to 4.0 pounds. U.S. per capita consumption of the noncellulosic synthetic fibers (mainly polyester, nylon, acrylic, modacrylic, olefin, and vinyon), however, rose from 0.9 pound in 1950 to 37.0 pounds in 1977. As a percent of total per capita consumption, cotton accounted for about 69 percent in 1950 and dropped to about 26 percent in 1977. Noncellulosic synthetic fibers, on the other hand, accounted for only about 2 percent of total per capita fiber consumption in 1950 and rose to about 66 percent in 1977.

In view of the fact that noncellulosic manmade fibers accounted for about 66 percent of total per capita fiber consumption in 1977 and are derived from petroleum, we might assume that a switch from synthetic to cotton fiber would save energy. But cotton production also requires petroleum and other energy sources.

In addition, production of fibers is just one segment in the whole chain of production and use of textiles: fiber to fabric to garment to maintenance to the end of a garment's life. According to one study (13), fiber production accounted for less than 15 percent of the total energy consumed in the production and maintenance of a specific garment, while maintenance of the garment, with commonly used laundering practices, accounted for approximately 55 to 80 percent. These data suggest that for energy conservation the consumer's adoption of practices that reduce energy use in maintenance or extend the wear-life of garments may be more important than choice of fiber.

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² The term synthetic is used in this article to describe fibers derived from wood cellulose and from petroleum. These fibers are frequently referred to as "manmade."

Table 1. Annual expenditures for clothing and shoes, 1960-78

| Year | Per capita expenditures ¹ | | Percent of expenditures for personal consumption | | Aggregate expenditures | |
|-------------------------|--------------------------------------|-----------------|--|-----------------|-------------------------------------|-----------------------------|
| | Constant dollars (1972) | Current dollars | Constant dollars (1972) | Current dollars | Billions of constant dollars (1972) | Billions of current dollars |
| 1960 | 203 | 148 | 8.1 | 8.2 | 36.6 | 26.7 |
| 1961 | 203 | 149 | 8.1 | 8.2 | 37.3 | 27.4 |
| 1962 | 209 | 154 | 8.1 | 8.1 | 38.9 | 28.7 |
| 1963 | 209 | 156 | 7.9 | 7.9 | 39.6 | 29.5 |
| 1964 | 222 | 166 | 8.1 | 8.0 | 42.6 | 31.9 |
| 1965 | 227 | 172 | 7.9 | 7.8 | 44.2 | 33.5 |
| 1966 | 239 | 186 | 8.0 | 7.9 | 46.9 | 36.6 |
| 1967 | 236 | 192 | 7.8 | 7.8 | 46.9 | 38.2 |
| 1968 | 242 | 208 | 7.7 | 7.8 | 48.6 | 41.8 |
| 1969 | 245 | 223 | 7.6 | 7.8 | 49.6 | 45.1 |
| 1970 | 240 | 227 | 7.4 | 7.5 | 49.2 | 46.6 |
| 1971 | 249 | 244 | 7.5 | 7.6 | 51.6 | 50.5 |
| 1972 | 264 | 264 | 7.5 | 7.5 | 55.1 | 55.1 |
| 1973 | 281 | 291 | 7.7 | 7.6 | 59.2 | 61.3 |
| 1974 | 279 | 308 | 7.8 | 7.3 | 59.1 | 65.3 |
| 1975 | 288 | 328 | 7.9 | 7.2 | 61.4 | 70.1 |
| 1976 | 298 | 352 | 7.8 | 6.9 | 64.2 | 75.7 |
| 1977 | 307 | 376 | 7.8 | 6.8 | 66.6 | 81.5 |
| 1978 ² | 317 | 398 | 7.8 | 6.6 | 69.3 | 86.9 |

¹Calculated by dividing aggregate expenditures for each year by population figures for July of each year.

²Preliminary figures--average of estimates for first 3 quarters of 1978 (i.e., seasonally adjusted quarterly totals at annual rates).

Sources: U.S. Department of Commerce, Bureau of the Census, 1978, Population estimates and projections, Current Population Reports, Series P-25, No. 729 (table C). U.S. Department of Commerce, Bureau of Economic Analysis, 1978, Survey of Current Business 58(8): 10 (table 11); and personal communication with Bob Klukus in the Bureau of Economic Analysis.

Table 2. Annual percentage change in selected indexes of consumer prices, 1974-78

| Consumer Price Index | 1974 | 1975 | 1976 | 1977 | 1978 ¹ |
|--|-------|------|------|------|-------------------|
| All items | +11.0 | +9.1 | +5.8 | +6.5 | +7.2 |
| Apparel and upkeep ² | +7.4 | +4.5 | +3.7 | +4.2 | +3.4 |
| Men's and boys' clothing | +7.9 | +4.3 | +3.5 | +4.6 | +2.4 |
| Women's and girls' clothing | +6.0 | +2.4 | +2.8 | +3.2 | +1.8 |
| Footwear | +6.1 | +4.4 | +4.0 | +4.7 | +3.4 |
| Other apparel commodities ³ | - | - | - | +4.6 | -1.0 |

¹Preliminary estimates--average for first 3 quarters of 1978 was compared with average for first 3 quarters of 1977.

²Also includes infants' wear, sewing materials, jewelry, and apparel upkeep services, for which indexes are not available.

³Developed in 1976 to include diapers, yard goods, earrings, wristwatches, and zippers.

Source: U.S. Department of Labor, Bureau of Labor Statistics, 1978, News, Consumer Price Index (monthly issues); and personal communication with Frank Ptacek in the Bureau of Labor Statistics.

ENERGY USED IN TEXTILE PRODUCTION

Energy consumed in the production of textiles and apparel in 1976 (the most recent data available) totaled 1.135 quadrillion British thermal units (Btu's).³ Table 4 shows that the production of fibers consumed the greatest amount of energy—0.749 quadrillion Btu's, or about 66 percent of total energy consumed for textiles and apparel in 1976. The processing of fibers in textile mills consumed 0.329 quadrillion Btu's of energy, or about 29 percent of total energy consumed. The manufacture of apparel and other textile items consumed 0.057 quadrillion Btu's of energy—only about 5 percent of the total energy consumed for textiles and apparel in 1976.

The textile mills and manufacturing industries (not including fiber production) consumed only about 3.1 percent of total energy consumed by all U.S. industry groups in 1976 and ranked seventh in energy consumption behind chemicals, primary metals, paper, petroleum and coal, stone, clay and glass, and food industry groups. These six industry groups consumed about 80 percent of the energy consumed by all major industry groups in 1976 (7).

Production of Fiber

Cotton production accounted for about 14 percent of energy consumed in the production of all fibers (12), while the energy consumed in wool production was only about 0.1 percent (4, 6). These fibers accounted for about 29 percent and 1 percent, respectively, of fiber consumption in 1976 (9). Energy consumed in the production of synthetic fibers, including the raw materials and production processes, accounted for the largest share—86 percent (including 11 percent for cellulosic and 75 percent for noncellulosic fibers) (13).

Energy consumption for cotton production can be broken down by type of fuel or electricity used as follows: natural gas, used for chemicals, fertilizers, irrigation, ginning, and compressing, accounted for about 59 percent

of total energy consumption for cotton production; diesel, used for field operations and irrigation, accounted for about 22 percent; gasoline, used for farm business transportation, field operations, and irrigation, accounted for about 11 percent; electricity, used for irrigation, accounted for about 6 percent; and liquid petroleum gas, used for irrigation and field operations, accounted for about 2 percent (12 and table 5). Energy consumed in the production of wool is for farm operations—mainly the shearing of sheep (4).

The production of cellulosic and noncellulosic synthetic fibers requires petroleum or natural gas to produce the petrochemicals (the raw materials) for the noncellulosic fibers and some form of energy to convert the petrochemicals (for the noncellulosics) and the wood cellulose (for the cellulosics) into fibers (13). Energy consumption data by type of fuel or electricity were not available for cellulosic manmade fibers; for noncellulosic manmade fiber production, these data were available only for energy consumed in the conversion of petrochemicals to fibers—fuel oil (39 percent), coal (30 percent), electricity (19 percent), and natural gas (12 percent) (7).

Production of Apparel and Other Textile Items

Energy consumed in textile mills and manufacturing industries is used mainly for apparel—about 81 percent (7). The production of carpets consumed about 7 percent, miscellaneous textile goods (felt goods, lace goods, paddings and upholstery filling, processed textile waste, coated fabrics, tire and cord fabric, nonwoven fabric, and cordage and twine) about 7 percent, and miscellaneous fabricated textile products (curtains and draperies, housefurnishings, textile bags, canvas and related products, pleating and stitching, automotive apparel trimmings, and machine embroideries) about 5 percent.

Textile mills produce mainly yard goods but also some finished items such as carpeting and knit underwear and hose. Energy consumed in these mills can be broken down into 29 percent for weaving, 23 percent for textile finishing, 17 percent for knitting, 14 percent for spinning, 9 percent for rug and carpet production, and 8 percent for production of miscellaneous

³ Btu is the quantity of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

textile goods. Textile energy consumption can also be broken down by type of fuel or electricity used as follows: Electricity (32 percent), oil (31 percent), gas (27 percent), and coal (10 percent).

Textile manufacturing industries complete the process of producing apparel and other textile items from yard goods. Energy consumed in these industries can be broken down by type of fuel or electricity used as follows: 50 percent electricity, 31 percent gas, 17 percent oil, and 2 percent coal.

NATURAL VERSUS MANMADE

It might seem that the trend to greater use of manmade fibers has in itself increased the consumption of energy and that energy could be saved by greater use of natural fibers. But figures on total consumption of energy for fiber, fabric, and garment production in the United States reflect the different amounts produced. These figures do not indicate how the total would change if natural fibers were substituted for synthetic fibers. For valid comparison it would be necessary not only to compute the energy used in producing a pound of each type of fiber, but also to determine the amounts of fiber used in garments with comparable uses, to measure the energy used in producing and maintaining those garments, and to compare the garments' wear-life. The results might vary considerably by type of garment, maintenance practices, and use.

Such comparative data are available from only one study that compared energy consumed in the production and maintenance of a 100 percent cotton shirt with a 65 percent polyester, 35 percent cotton shirt.⁴ Results of this study suggest that, overall, the 100 percent cotton shirt is the more costly in terms of energy use. Although a synthetic fiber shirt requires about one-fourth more energy to produce, a natural-fiber shirt requires more than twice as much energy to maintain over the same number of laundering cycles and it lasts only two-thirds as long (table 6). More energy

is required to maintain (using common laundering practices) than to produce both types of shirts—especially for the 100 percent cotton one. The total energy required for production and maintenance, assuming an equal wear-life and commonly-used laundering practices, was estimated as 115.5 kilowatt hours (kWh) for the cotton shirt, compared with 72.4 for the polyester-cotton shirt.

Production⁵

The total energy required for fiber, fabric, and shirt production for a 100 percent cotton shirt was estimated by van Winkle et al. to be 26.3 kWh versus 32.6 kWh for a 65 percent polyester, 35 percent cotton shirt.

The energy consumed in the production of 1 pound of cotton fiber was estimated at 6.1 kWh, including fuel and electricity for farm equipment, irrigation and ginning, and energy associated with the production of fertilizers and pesticides. This figure is similar to the one reported by the National Cotton Council of America—6.0 kWh (1). The energy consumed in the production of 1 pound of polyester fiber was 21.6 kWh, including energy required for the removal of petroleum from the ground, for the production of petrochemicals, and eventually for the production of the fiber. The amount of fiber required to produce one shirt varies by fiber. A 100 percent cotton shirt required 0.82 pound of cotton and a 65 percent polyester, 35 percent cotton shirt required 0.62 pound of polyester and cotton (0.37 pound of polyester and 0.25 pound of cotton), according to van Winkle et al. The energy required to produce enough fiber for the cotton shirt was 5.0 kWh and for the polyester-cotton shirt, 9.6 kWh.

The energy consumed in the manufacture of fabric for shirts from the raw fiber includes the electricity, steam, and natural gas consumed by

⁴ The research was a 3-year study conducted by T. L. van Winkle et al. from 1974 through 1976 (2, 13). The study investigated energy consumption through four stages: fiber production, fabric production, shirt production, and maintenance.

⁵ Relative amounts of energy consumed in fiber production compared with fabric and garment production differ between table 4, which pertains to textiles and apparel as a whole, and table 6, which pertains to a particular item of apparel. Relative amounts of energy are likely to differ with the type of textile item produced. Also, the quantities of energy consumed in the production of fibers in table 4 include fibers that are exported.

Table 3. U.S. per capita consumption of fibers, 1950, 1960, 1970, and 1977

| Year | Total | | Manmade fibers | | | | Natural fibers | | | | | |
|----------------------|-------|-------|----------------|------|---------------|------|----------------|------|------|-----|------------------|------------------|
| | | | Cellulosic | | Noncellulosic | | Cotton | | Wool | | Flax and silk | |
| | Lb | Pct | Lb | Pct | Lb | Pct | Lb | Pct | Lb | Pct | Lb | Pct |
| 1950 ... | 45.0 | 100.0 | 8.9 | 19.8 | 0.9 | 2.0 | 30.9 | 68.7 | 4.2 | 9.3 | 0.1 | 0.2 |
| 1960 ... | 35.8 | 100.0 | 5.8 | 16.2 | 4.2 | 11.7 | 23.4 | 65.4 | 2.3 | 6.4 | .1 | .3 |
| 1970 ... | 46.2 | 100.0 | 6.9 | 14.9 | 19.3 | 41.8 | 18.8 | 40.7 | 1.2 | 2.6 | (¹) | (²) |
| 1977 ³ .. | 56.2 | 100.0 | 4.0 | 7.1 | 37.0 | 65.8 | 14.7 | 26.2 | .5 | .9 | (¹) | (²) |

¹Less than 0.1 pound.²Less than 0.1 percent.³Preliminary figures.

Source: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1978, Table 1428--Mill consumption of natural and man-made fibers: 1950-1977, p. 824.

Table 4. Energy consumption for textiles and apparel production in 1976

| Category | Quantity of energy | Quantity of energy per pound of fiber | Percent of total |
|---|--------------------|---------------------------------------|------------------|
| | Quadrillion Btu's | Btu's | |
| Fiber production: | | | |
| Cotton | 0.103 | 20,600 | -- |
| Wool | .001 | 1,786 | -- |
| Noncellulosic | .563 | 85,027 | -- |
| Cellulosic | .082 | -- | -- |
| Rayon | -- | 96,218 | -- |
| Acetate | -- | 100,995 | -- |
| Total | 0.749 | -- | 66 |
| Apparel and other textile items production: | | | |
| Textile mills | .329 | -- | 29 |
| Textile manufacturing industries | .057 | -- | 5 |
| Total | 1.135 | -- | 100 |

Sources: Textile Economic Bureau, Inc., 1978, Tables: Man-made fiber production; non-cellulosic fiber production detail, Textile Organon 49(2): 12. U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, 1978, Crop Production Report, May 9, 1978 issue; and personal communication with Millie Jones. U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, 1978, personal communication with Allen Evans. VanArsdall, R. T., and Starbird, I. R., 1978, Energy, another dilemma faced by cotton, Proceedings of the 1978 Beltwide Cotton Production-Mechanization Conference, Dallas, Texas, January 1978, pp. 48-52; and personal communication with R. T. VanArsdall, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, Washington, D.C. U.S. Department of Commerce, Bureau of the Census, 1978, Fuels and electric energy consumed--industry group and industries, Annual Survey of Manufacturers, 1976, M76(AS)-4.1, Washington, D.C. van Winkle, T. L., Edeleanu, J., Prosser, E. A., and Walker, C. A., 1978, Cotton versus polyester, American Scientist 66(3):280-290; and personal communication with T. L. van Winkle. The Wool Bureau, Inc., 1978, personal communication with Marguerite Gadel, 360 Lexington Avenue, New York, N.Y.

Table 5. Percent of total energy consumption for textiles and apparel by type of fuel or electricity consumed in 1976

| Category | Gasoline | Diesel | Liquid propane | Natural gas | Fuel oil | Coal | Electricity |
|--|------------------|------------------|------------------|-------------|------------------|------------------|-------------|
| Production of fiber: | | | | | | | |
| Cotton | 11 | 22 | 2 | 59 | (¹) | (¹) | 6 |
| Noncellulosic | (¹) | (¹) | (¹) | 12 | 39 | 30 | 19 |
| Production of apparel and other textile items: | | | | | | | |
| Textile mills | (¹) | (¹) | (¹) | 27 | 31 | 10 | 32 |
| Textile manufacturing industries | (¹) | (¹) | (¹) | 31 | 17 | 2 | 50 |

¹Not available.

Sources: U.S. Department of Commerce, Bureau of the Census, 1978, Fuels and electric energy consumed--industry group and industries, Annual Survey of Manufacturers, 1976, M76 (AS-4.1). VanArsdall, R. T., and Starbird, I. R., 1978, Energy, another dilemma faced by cotton, Proceedings of the 1978 Beltwide Cotton Production-Mechanization Conference, Dallas, Texas, January 1978, pp. 48-52; and personal communication with R. T. VanArsdall, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, Washington, D.C.

Table 6. Comparison of energy consumption in the production and maintenance of a 100 percent cotton shirt and a 65 percent polyester, 35 percent cotton shirt

| Category | Cotton | Polyester-cotton |
|--------------------------------|--------|------------------|
| | kWh | kWh |
| Fiber production | 5.0 | 9.6 |
| Fabric production | 18.5 | 20.2 |
| Shirt production | 2.8 | 2.8 |
| Total production | 26.3 | 32.6 |
| Maintenance ¹ | 89.2 | 39.8 |
| Total | 115.5 | 72.4 |

¹Based on 50 laundering cycles.

Source: Adapted from van Winkle, T. L., Edeleanu, J., Prosser, E. A., and Walker, C. A., 1978, Cotton versus polyester (Table 4), American Scientist 66(3): 286.

weaving and finishing mills.⁶ Energy for production of cloth for a 100 percent cotton shirt and a 65 percent polyester, 35 percent cotton shirt was estimated at 18.5 kWh and 20.2 kWh, respectively.

Energy required to manufacture both types of shirts was estimated to be 2.8 kWh, based on a 2-year average amount of electricity and natural gas used for operating machinery and for heating and air-conditioning plants.

Maintenance and Wear-Life⁷

Energy required to maintain each type of shirt through 50 cycles of washing, drying, and ironing was estimated at 89.2 kWh for the cotton shirt and 39.8 kWh for the polyester-cotton shirt (table 6). This included energy to wash, dry, and iron garments by laundering practices commonly used in the United States—washing and drying in automatic machines with separated loads (cotton on regular cycle, hot wash and hot rinse, and polyester-cotton on permastarch cycle, hot wash, cold rinse); removing shirts from the dryer when dry; and using an electric iron for both types of shirts. Use of energy-conserving laundering methods⁸ could reduce energy requirements about two-thirds, to 31.0 kWh for the cotton shirt and 13.7 kWh for the polyester-cotton shirt.

The polyester-cotton shirt was estimated to last 75 laundering cycles, about one-and-a-half times as long as the cotton shirt, which lasted only 50 cycles. Taking this into account, the

cotton shirt would consume even more energy than the polyester-cotton shirt for production and use.

In actual use, the wear-life of garments may vary considerably among consumers. Changes in fashion may cause garments to be discarded long before they actually are worn out, or individuals may treat some garments with extra care, thus greatly increasing their wear-life. Maintenance practices may also differ from the study method. Garments washed in warm or cold water rather than hot water, hung to dry rather than put in the dryer, and worn without ironing would consume less energy for maintenance.

ENERGY CONSERVATION

According to several trade sources, energy-conserving techniques have already been introduced in the fiber, fabric, and garment-production areas of textiles and apparel. They have been adopted in the production of both natural and synthetic fibers. Such conservation programs are expected to continue and expand.

Consumers may conserve energy by altering their maintenance practices, by extending the wear-life of garments where possible, and by selecting garments that require less energy for maintenance. For example, a no-iron, all-cotton shirt, soon to be on the market, will provide convenience and some energy savings (14). Means of conserving energy used in maintenance include using laundering equipment with energy-conserving features, using cold water for wash and rinse cycles, hanging garments to dry, and reducing the need for frequent laundering by spot cleaning and wearing protective coverings such as aprons and underarm shields. The wear-life of garments may be extended by less frequent laundering of garments, by greater care in wearing and storing garments, and by selecting styles and fabrics that will be acceptable for longer periods of time. Sanitation as well as the general appearance of garments should be considered in deciding on specific means of conserving energy.

⁶ Energy consumed by weaving and finishing mills was 6.53 kWh per square yard for 100 percent cotton fabric and 7.13 kWh per square yard for the 65 percent polyester, 35 percent cotton fabric. The amount of fabric required for the production of a shirt was given at 2.833 square yards.

⁷ Estimates of energy consumed in maintaining each type of shirt as well as estimates of wear-life of the shirts used by van Winkle et al. were based on data from other studies.

⁸ This included an energy- and water-saving automatic washer (wash water for two loads, warm wash, cold rinse—for both types of shirts), no automatic dryer, and an electric iron.

References

1. Bowling, A. L. 1978. Energy for food and fiber. Paper presented at the Massachusetts Institute of Technology, January 1978. National Cotton Council of America, Memphis, Tenn.
2. Man-Made Fiber Producers Association, Inc. 1978. New study from Yale University shows an all-cotton garment uses 88% more energy than polyester blend. *Focus on Man-Made Fibers*, Issue No. 5. Washington, D.C.
3. Textile Economic Bureau, Inc. 1978. Tables: Man-made fiber production; noncellulosic fiber production detail. *Textile Organon* 49(2): 12. New York, N.Y.
4. The Wool Bureau, Inc. 1978. Personal communication (September 22) with Marguerite Gadel, 360 Lexington Avenue, New York, N.Y.
5. U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service. 1978. *Crop Production Report*, May 9, 1978 issue; and personal communication with Millie Jones.
6. ———— 1978. Personal communication Allen Evans.
7. U.S. Department of Commerce, Bureau of the Census. 1978. Fuels and electric energy consumed, industry group and industries. *Annual Survey of Manufacturers*, 1976 M76(AS)-4.1. Washington, D.C.
8. ———— 1978. Population estimates and projections. *Current Population Reports*, Series P-25, No. 729 (table C).
9. ———— 1978. Mill consumption of natural and man-made fibers: 1950-1977 (table 1428). *Statistical Abstract of the United States*, 1978, p. 824. Washington, D.C.
10. U.S. Department of Commerce, Bureau of Economic Analysis. 1978. *Survey of Current Business* 58(8): 10 (table 11); and personal communication with Bob Klukus of the Bureau of Economic Analysis.
11. U.S. Department of Labor, Bureau of Labor Statistics. 1978. *News*; Consumer Price Index (monthly issues); and personal communication with Frank Ptacek in the Bureau of Labor Statistics.
12. VanArsdall, R. T., and Starbird, I. R. 1978. Energy, another dilemma faced by cotton. Proceedings of the 1978 Beltwide Cotton Production-Mechanization Conference, Dallas, Texas, January 1978, pp. 48-52; and personal communication with R. T. VanArsdall, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, Washington, D.C.
13. van Winkle, T. L., Edeleanu, J., Prosser, E. A., and Walker, C. A. 1978. Cotton versus polyester. *American Scientist* 66(3): 280-290; and personal communication with T. L. van Winkle.
14. Watterson, T. 1978. All-cotton shirts try comeback. *The Christian Science Monitor* 70(234): 17. [October 27, 1978 issue.]

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THE FOOD PRICE OUTLOOK FOR 1979 _{ff}

by J. B. Penn¹

¹ Deputy Administrator for Economics; Economics, Statistics, and Cooperatives Service, USDA. Condensed from a paper presented at the Food and Agricultural Outlook Conference in November 1978, at Washington, D.C. Complete copies are available from Economics, Statistics, and Cooperatives Service, Information Division, Publications Unit, Room 0054, South Building, Washington, D.C. 20250.

Each year we are asked to put our collective analytical expertise "on the line"—to present our expectations for the behavior of food prices over the coming year.

Food prices are an important factor in shaping the inflation psychology of consumers. They are also a critical element in the wage-price spiral now plaguing the economy. Before

discussing the USDA food price forecast for 1979, I want to review the most common measure of food prices and to quickly note food price behavior in past years to provide some perspective in which to place the outlook for 1979.

MEASURING FOOD PRICES

The Consumer Price Index for Food

The most widely used measure of prices at the retail level is the Consumer Price Index for all urban consumers (CPI-U). The food price data used to develop the CPI-U are collected throughout each month for a wide variety of typically purchased foods. Month-to-month changes in these prices are weighted by their importance in the food budget and are reported in the form of index numbers for major product groups (for example, meats, dairy products, and cereal and bakery products). The reports are then released to the public with about a 1-month lag.

The CPI-U is a *price* index. A 10 percent increase in the CPI-U for food does not necessarily imply that the average consumer spends 10 percent more for food. Consumers adjust what they buy in response to higher or lower prices but the process used to develop the CPI-U does not take such adjustments into account. The CPI-U is, therefore, best thought of as a price index and not a *cost of living* index.

This distinction is particularly important for food. Food prices for specific items can be quite volatile because of supply disruptions owing to biological phenomena or natural disasters. Lettuce prices in some areas in spring 1978 increased to over \$1.00 per head—reflecting the reduced quantities available for sale. Undoubtedly, some people bought less lettuce. But the CPI-U only reflected the fact that retail lettuce prices were 125 percent higher.

The relative importance of food in the CPI-U is about 18 percent, reflecting on average the proportion of consumer expenditures that go for food. The all-food index is subdivided into two major components: food-at-home (12.2 percent) and food-away-from-home (5.5 percent). Meat purchases now account for about 32 percent of all food-at-home purchases.

Other important groups include fruits and vegetables (14.4 percent), dairy products (13.5 percent), and cereal and bakery products (12.5 percent). Increasingly important categories are the nonalcoholic beverages (12.4 percent) and the processed foods (8.5 percent).

Food Price Determinants

The challenge in food price forecasting is to predict the value of the CPI-U. In deriving forecasts of this index, the USDA effort centers on expected price determinants in three broad areas:

- The farm production sector,
- the food marketing system, and
- consumer purchase conditions.

Farm commodity prices. Even though raw farm commodities have over time become a smaller proportion of total food expenditures, conditions in the farm sector are still essential to evaluating the food price situation. On the average, the farmer's share of expenditures for *domestically produced farm foods* is now about 40 percent. For *total* food expenditures, it is much smaller—26 percent.

Commodity prices are largely determined by what is produced, both domestically and worldwide. The quantities produced, however, are heavily influenced by the rather unpredictable forces of nature—weather, pest infestations, and plant and animal diseases. These occurrences are nearly impossible to predict. Yet, they are usually the source of food price forecast errors.

Last year was an excellent example. The major contributors to the larger than anticipated food price increases were red meat and fresh vegetable prices. In both cases, weather was the indirect, if not the direct, cause. Severe cold weather in the primary hog-producing States for the second consecutive year adversely affected the availability of pork. Early indications were for hog farrowings to be 13 percent higher from December 1977 through February 1978 than for the same period a year earlier. When the pig numbers became available, however, farrowings were actually down 1 percent. Weather-induced disease, breeding problems, and other losses resulted in 1978 pork production being only 1

percent higher than in 1977. A 10 percent increase was originally forecast.

The weather-induced problem touched off a chain reaction in meat prices. Without the increased pork production, which had been expected to dampen the beef price increases, prices of both beef and poultry increased at a much more rapid rate than expected.

Then, following a prolonged drought, the rains came to California. Planting and harvest schedules for some vegetables, notably lettuce, were disrupted. Lettuce prices, usually in the \$2.50 to \$5.00 per crate range, increased to \$18.00 (300 percent). In addition, the cold weather early in 1978 affected the availability of some fruits, and their prices rose unexpectedly.

The approximate 15 percent increase in all farm commodity prices this year contributed about 40 percent to the 1978 increase in food prices.

Marketing costs. The costs for marketing food—for transforming and transporting from the farm to the supermarket—are becoming increasingly important. In 1978, increased marketing costs for domestically produced farm foods were responsible for about half of the higher food costs.

The largest single component of the marketing bill is labor, accounting for 47 percent. It was widely publicized when labor costs exceeded the farm value for the first time in 1977. Labor costs for 1978 increased another 10 percent over the 1977 level.

Food prices are now being more significantly influenced by increasing costs for energy-related inputs. Packaging and transportation costs, which account for about 21 percent of total marketing charges, are highly dependent on energy prices. Packaging costs in 1978 increased about 6 percent, while transportation costs were about 10 percent higher than in 1977.

Consumer purchase conditions. The influence of changing conditions for food demand is of varying importance to food prices. There is no doubt that rising incomes, reduced unemployment, and the increased population influenced food prices in 1978. But, other more subtle changes are underway as well. There are more multiple income families; family sizes are smaller; and the roles of

women and men are changing. These changes alter the kinds of foods purchased and place more emphasis on marketing services.

The impact of these changes is already being reflected in the relative weights attached to the various components of the CPI. Adoption of the broader-based CPI-U with its changed weights did influence the food price situation this year. (See FAMILY ECONOMICS REVIEW, Summer 1978 issue, p. 22, for a discussion of the revision in the CPI.)

- Food-away-from-home now has a 31 percent weight—9 percent more than in the unrevised index. The “other processed food” category has increased in importance by more than 50 percent.
- The nonalcoholic beverage category now has a 12.4 percent weight—30 percent higher than previously.
- Purchases of those foods without a domestic farm product base (fish and foreign foods such as coffee and bananas) now account for almost 20 cents out of each dollar spent on food—up from about 11 cents in 1967. Clearly, these foods are becoming relatively more important.

FOOD PRICES IN REVIEW

While food price increases are headline news, it is important to view such reported increases in historical perspective. An examination of the year-to-year changes in retail food prices since 1950 reveals that, in 17 of the 27 years, food price increases contributed less than 1 percentage point to the overall rate of inflation. In four of those years, 1953, 1954, 1955, and 1959, food prices actually *reduced* the overall rate of inflation in the general economy.

The more recent history is a somewhat different story, however. Four of the largest year-to-year percentage changes in retail food prices have occurred since 1972. In every year except 1976, food price increases have contributed more than 1 percentage point to the overall inflation rate.

THE FOOD PRICE OUTLOOK FOR 1979

By making alternative assumptions about increased costs in each of the three major components of total food expenditures, we can develop a *range* for our 1979 food price

forecast. These three components are:

1. The value of farm commodities—accounting for about 26 percent of total food expenditures. This is a highly volatile component since production is determined by domestic and worldwide weather, policies of major trading nations, and other related factors.
2. The costs for marketing services—accounting for about 57 percent. The marketing services component is more directly affected by price changes (inflation) in the general economy than are the other two components. Thus, while prices and costs of the various categories such as labor, packaging, transportation, and energy will individually vary, increased costs for the marketing services will *at least* reflect the underlying rate of inflation.
3. The costs for “other foods”—foods without a domestic farm base—accounting for 17 percent. Price increases in this category are generally determined by conditions outside the United States. These products are generally imported and include such items as fish, coffee, bananas, and sugar. Their prices are highly volatile; since 1970, price increases for foods in this category have exceeded 145 percent, compared with a 60 percent increase for domestically produced foods.

Our conservative or *minimum* estimate for food price increases this year is a 6 percent rise over 1978. This explicitly assumes a slowed rate of inflation (6 percent), no weather adversities, and increased output of pork and broilers.

But what if we are not so fortunate? Suppose we have weather problems in 1979 that repeat those of last year. And, what if the inflation rate moves to an 8 percent annual rate? We can view this as a “worst case” situation to establish an outer point of the range. This set of circumstances could have food prices again increasing 10 percent.

Having established this rather wide range—6 to 10 percent—can we be more specific about what can logically be expected from our vantage at this point in time? I think we can.

- Our analysis of the world and domestic agricultural supply-demand situation

suggests that prices of all farm commodities will increase 7 percent in 1979, adding 2 percent to the overall food price increase.

- A review of the macroeconomy suggests the rate of increase in marketing costs in 1979 will probably be about 7 percent, increasing food prices by 4 percent.
- Price increases for foreign foods, fish, and nonalcoholic beverages can be expected to add 1.5 percent to the increase.

Thus, summing up these three components for this presently *most likely situation*, we would expect retail food prices to increase about 7½ percent in 1979. As is generally the case, price increases will be most evident during the first half of the year. During the third and fourth quarters, increases should moderate, and prices may even decline slightly.

Farm product prices in each major category are now expected to be higher than in 1978. At this time in the year there is little alternative other than assuming favorable weather for 1979 and the corresponding implied crop production levels. Thus, even though *prices for all commodities* are expected to increase 7 percent in 1979 (about half the increase of 1978), this is due primarily to *livestock* and not crops. *Grain* prices are expected to remain stable, exhibiting perhaps only a slight increase for feed grains.

The largest expected price increase for any commodity group is for *livestock*. Meat animal prices are expected to increase about 13 percent, reflecting the higher cattle prices. Expansion in poultry production will result in stable to slightly declining prices in the poultry and eggs category. Dairy product prices will again increase about 8 percent, similar to 1978.

There is an adage that “if you can’t forecast well—forecast often.” Food prices, as we have seen in 1978, are not easy to forecast with a great deal of accuracy. Unexpected events will no doubt alter the outlook I have just presented. It will, of course, be revised over the year to reflect the changing conditions. I invite you to watch for our monthly analysis published in AGRICULTURAL OUTLOOK.²

² A single free copy of *Agricultural Outlook*, which is published monthly, can be obtained by writing to: Agricultural Outlook, ESCS, USDA, GHI Building, Washington, D.C. 20250.

245 THE OUTLOOK FOR HOUSING IN 1979

by Robert J. Sheehan¹

Housing Market

Residential construction activity occurred at very high levels during 1977 and 1978. In 1977 there were 1.988 million units started and the 1978 level (not yet available) is expected to be about the same. These 2 years will be the fourth and fifth best years for new housing production in the history of the United States. There were only 3 better years—1971, 1972, and 1973—at 2.1, 2.4, and 2.1 million starts, respectively. Those years, however, were supported by high levels of Federal Government subsidized units; during each, there were about 400,000 new units that received subsidies either from the Department of Housing and Urban Development or the Farmers Home Administration. In 1977 and 1978 there were only about 100,000 subsidized new units. Thus, these 2 years were record years of production in terms of privately financed construction.

1978 surpassed the level expected by most forecasters, and those who did call it may have been right for the wrong reasons. During 1977 the rate of inflation rose sharply, and along with it, interest rates. By September 1977 interest rates, especially for Federal Government securities, were high enough to provide strong competition for savings. The flow of savings into the thrift institutions (savings and loan associations and mutual savings banks), which are the principal source of mortgage funds in this country, began to drop substantially. The slowdown continued for several months into May 1978. In each of these months, net new savings in the thrifts were about 50 percent under the same month in the previous year. These institutions were coming to the point where they would not have money to lend for new mortgages at the record levels that had been occurring. Also, dramatic price increases in both new and existing homes had been continuing. This alone would require substantial new funds just to

support the same unit level of activity. A crunch was expected in 1978, with a consequent sharp downturn in new housing starts.

Then in late May 1978 the money managers of the United States stepped in and made commercial banks and the thrifts more competitive for savings. The announcement caught the financial community by surprise. These money managers—the Federal Reserve Board (which regulates commercial banks) and the Federal Home Loan Bank Board (which regulates the savings and loan industry)—approved two new money market instruments. One was designed to capture short-term savings and the other, long-term. The long-term instrument was an 8-year certificate of deposit which could carry an 8 percent interest rate. It was the short-term instrument that had the most pronounced effect. This was a 6-month certificate of deposit whose rate was tied to the yields on 6-month U.S. Treasury bills. These 6-month U.S. Treasury bills are one instrument that the Federal Government uses to finance its operations and debt. The 6-month bills, combined with the Government's 3-month bills, become a leading indicator of the direction of interest rates in general. When their yields rise, especially as a result of the high level of the Federal deficit, investors are attracted to them and take their money out of commercial banks and thrifts which are limited in the interest they can pay. The newly available 6-month certificates of deposit now made commercial banks and thrifts competitive for funds. In the case of the thrifts they also could add a quarter of 1 percent above that paid by the U.S. Treasury Department and commercial banks. This is similar to the advantages that they have on their other types of accounts.

During June 1978—the first month the 6-month certificates were permitted to be issued—the flow of new savings into the savings and loan industry turned around and has continued that way ever since it should be noted that the new flows were still not at comparable levels to previous periods but they were substantial. The expected downturn in

¹ Associate Chief Economist, National Association of Home Builders. Paper presented at the Food and Agricultural Outlook Conference in November 1978, at Washington, D.C.

housing starts did not occur. The seasonally adjusted annual rate of housing starts has stayed over the 2-million level.

In spite of this change, all is not positive for the housing market. The general rate of inflation, as measured by the Consumer Price Index, was at double-digit levels several times during 1978 and was expected to end up at around 9 percent. This compares to 6.6 percent in 1977 and 4.8 percent in 1976. New home prices have been increasing at a 12 to 14 percent rate over the past 2 years. Building materials prices, which used to change generally about once a year, are now changing so often that builders have difficulty obtaining quotes. Land development regulations and growth moratoria are pushing up land prices. And mortgage interest rates are pushing over 10 percent in a number of markets.

In prior economic cycles, housing led the economy into recession when mortgage market funds dried up. It wasn't mortgage interest rates that stopped housing sales; it was the lack of loanable funds. The new money market certificates have changed this—at least temporarily. Mortgage money also has been more available because of other more active sources of funds. The Federal Home Loan Bank Board (FHLBB) can make loans to its member institutions, and it did so at very high levels in 1978. Also, the secondary markets—where mortgages are purchased from lenders who, in turn, can lend these proceeds out again—have become more important. The principal operator in this market is the Federal National Mortgage Association (Fannie Mae). In 1978 they made net purchases of \$12 billion in mortgages. Both the FHLBB and Fannie Mae obtain the funds they use for the loans and mortgage purchases from the general capital markets. This means they draw in new money to the residential mortgage markets. These three sources of funds—money market certificates, FHLBB loans, and secondary markets—are protecting the mortgage market from drying up. This situation will provide a new test of how the price of money and the cost of houses affect the housing market.

At some point housing costs and mortgage interest rates will force substantial numbers of families out of the housing market. Households, for the past few years, have been

willing to buy new homes and spend more of their income on housing. At what point will they give up? This is not known precisely, but we know lenders will become more cautious. Hence, the result will be that buyers will decide to postpone their purchases—and this trend will continue in 1979.

The mortgage supply problem is not behind us. At least 17 States have usury laws which essentially limit mortgage interest rates to 10 percent or less. With the dramatic tightening in monetary policy, evidenced by the recent actions of the Federal Reserve Board and the Administration to support the dollar in foreign markets, it is clear that the mortgage rate will rise above 10 percent. Lenders will be unwilling to seek savings that will essentially cost them money. Thus, they will slow down their willingness to accept the new money market certificates, and that means that less mortgage money will be available in the States with usury laws.

Certainly some of these 17 States will raise their ceilings, but this takes time. Raising the usury ceilings becomes an emotional issue, and by the time they are raised the crunch is usually over. They only tend to help raise the level for the next tight money period.

All of this forms the framework for the National Association of Home Builders' forecast. The forecast is based on certain assumptions. We anticipate that short term interest rates will peak early in the first quarter of 1979. This would mean that Treasury bill yields will go over 10 percent, and the prime rate will reach the 11 to 12 percent range. They would then decline over the rest of the year. The secondary mortgage markets and the Federal Home Loan Bank Board advances will still be strong. The Administration's inflation policy will be somewhat effective, and inflation should drop to a 7 percent level for the year. Overall economic growth will be about 1.5 to 1.75 percent for the year in real terms as measured by Gross National Product. This will be less than half the 1978 rate. Personal income will rise at about a 9 percent rate, down markedly from the 11.3 percent of 1978. Unemployment should rise moderately to the 6.5 or 6.6 percent level.

These assumptions produce a housing starts forecast of 1.65 million units for 1979, down

15 percent from 1978. The downturn would be shared proportionately by the single and multifamily sectors. Single family starts are expected to drop to 1.150 million units, off 220,000 units from the 1.370 million units produced in 1978. Multifamily starts are predicted to decline to 500,000 units, down 90,000 units from the expected 590,000 starts for last year.

Uncertainty is the best description for this forecast. The recent sharp rise in interest rates may lead to a longer period of high rates and further dampen investor and consumer confidence. There is now a 60 to 70 percent chance for a recession for 1979. If monetary policy does not loosen up after the first quarter of 1979 and economic confidence wanes even further, the forecast could change to the 1.50-1.55-million level.

I don't mean to bring you a picture of doom and gloom—but forewarned is forearmed and the outlook today is less than rosy.

Design of Homes

I was asked to comment on the future design of homes as they will be affected by energy consumption, costs of materials, smaller family sizes, and changing life styles.

Presently we are working on a 10-year housing starts forecast. Preliminary results show that we can expect a high level of production for the 1979-88 period. Starts should average 1.9 million units per year over the period, with single family units taking a 70 percent share. The market will continue to be dominated by the 25- to 35-year-old heads of households who were born in the post World War II baby boom.

To date, the housing market has not been visibly affected by smaller family sizes. Units have become larger, with the median size increasing to 1,610 square feet in 1977 from 1,590 square feet in 1972. Higher incomes and greater demand for space have led to this pattern. This trend may be reversed now by change from another sector—tax laws.

The 1978 tax bill now permits the exemption of up to \$100,000 of the profit on the sales of homes occupied by owners over 55 years of age. Owners can take advantage of this change in the tax law once in their lifetime.

These households—who are likely to be “empty nesters” (without children)—have not been able to take advantage of the sharp rise in their property values. If they had a desire to move into a smaller unit, the tax laws constrained them. Moving into a smaller unit meant paying a smaller price, plus having to pay capital gains taxes. Now that they are freed from this restriction, more of them will move. After all, it's practically a windfall from heaven to be able to save all the capital gains tax money. And, at 55 or over, that's a healthy chunk toward retirement plans. Smaller units will benefit, especially condominiums and townhouses. It is too early to determine the magnitude of this change, both in demand for smaller units and the amount of space required. But, believe me, the change will happen.

Concern over energy consumption is primarily manifesting itself in the greater use of insulation and passive solar collectors. The placing of new residential structures on lots is becoming more of a science, based not only on drainage, sewage, water sources, etc., but also on direction toward the sun. Passive solar collectors, which in current technology are primarily windows, are reliant on their position to the sun for effectiveness. Technology for solar collectors to provide energy for heating and cooling and other uses is still in its infancy. Very little equipment is economically viable. A continued high level of migration toward the Sunbelt States will keep up the interest and investment in solar energy.

Finally, there is little that can be said about the effects of the higher costs of building materials. From recent trends there is no evidence that the basic materials used in housing production will change. All prices are rising together, with only short term lags between competing materials. The only major change in the last few years has occurred in exterior sheathing materials. Previously, sheathings were primarily made of either plywood or wood byproduct composition boards. Greater needs for insulation in walls has led to the use of insulating materials for sheathing. Styrofoam and other petrochemical-based materials have been the primary substitute materials. Other changes will no doubt occur, but they are not now evident.

FARMERS HOME ADMINISTRATION RURAL HOUSING PROGRAMS

by L. D. Elwell¹

As a Nation, several years ago we adopted as our housing goal to provide for every family, the young and old, the urban and rural, an opportunity to have a decent home. Considerable progress has been made toward accomplishing this goal in the past quarter century but much remains to be done, particularly for the low-income families in rural areas. Statistics sometimes may lure us into thinking that the problem is solved; however, those of us who work in rural areas know that is not the situation.

One-third of our population lives in rural America. This one-third of our population, however, has 42 percent of the Nation's substandard housing and 40 percent of the Nation's poverty. Many people are aware of the poor housing in the slums of our large cities, but few realize how deeply this blight also reaches into the open country and the small towns.

In my opinion, one of the most important things needed to resolve rural housing problems is a delivery system that puts the housing credit out where the assistance is needed. The Farmers Home Administration (FmHA) has such a delivery system. We have 46 State offices and approximately 1,800 county offices serving every county or parish in the 50 States plus the Pacific Trust Territory, Guam, Puerto Rico, and the Virgin Islands. Each county office is staffed with people who live and work in the local communities and become acquainted with the local leaders and others who work toward the common goal of helping families improve their housing. In dealing with the problems of low-income families, we believe it is essential to have county office personnel who can talk with low-income families across the table to be sure that they understand the problems and then can guide

the family towards a satisfactory solution. Families in this income bracket cannot or often are hesitant to do business by telephone, long distance commuting, or mail. They need to be able to talk to someone to explain their problem. FmHA's delivery system is designed to provide this needed "face-to-face" contact.

FmHA has a number of rural housing programs or "tools" that can be used to improve a family's housing condition. FmHA should not be thought of as a banker or lender. FmHA is a lender of last resort or secondary lender. This means that we serve only those who are unable to obtain the needed housing loan from a private lender. Many people immediately think of persons who have bad credit ratings; however, this is not the case. Our experience indicates that many rural areas are not served by private lenders providing housing credit. Furthermore, there are many families who simply do not have the downpayment or who cannot afford the loan terms required by private lenders. There are six major FmHA housing programs that can be used to provide assistance in rural areas.

Section 502 RH Loans are made to a family to buy, build, or improve a modest home of their own. Three types of loans are available under this program:

1. Insured loans to low- and moderate-income families. These are direct loans made by FmHA for buying the site, building the house, and providing the related facilities. Eligible applicants are those who are unable to obtain a loan from a private credit source, who have adjusted incomes of \$15,600 or less, but sufficient income to repay the FmHA loan. The moderate-income families have adjusted incomes of between \$11,200 and \$15,600. These families currently pay 8½ percent interest, and the loan can be amortized over a period of up to 33 years. Low-income families are those having adjusted incomes of \$11,200 or less; they receive approximately 60 percent of our loans. They are eligible for interest credit assistance, which is a subsidy paid by FmHA to lower the effective interest rate from 8½ percent to as low as 1 percent. The family

¹ Assistant Administrator, Farmers Home Administration, USDA. Condensed from a paper presented at the Food and Agricultural Outlook Conference in November 1978, at Washington, D.C. Complete copies are available from the Consumer and Food Economics Institute (see inside cover of this issue for address).

pays 20 percent of its income for principle, interest, taxes, and insurance with FmHA subsidizing the balance. The average effective interest paid by the families in this income category is about 2.9 percent. At the end of fiscal 1977, the average size house contained 1,057 square feet of living area, the average loan was \$25,067, and the average family size was 3.4 persons per family. The median income for FmHA borrowers for this period was \$10,433 compared with \$15,679 for borrowers receiving loans made by conventional lenders (see table).

2. Guaranteed loans for families with above-moderate incomes. This loan is made by a private lender, but FmHA guarantees 90 percent of the amount loaned. These loans are made to families with adjusted incomes of between \$15,600 and \$20,000. The interest rate will be determined on a negotiated basis between the lender and the applicant; however, the interest rate cannot exceed the rate charged on other similar loans in the area. The house must be modest in size, design, and cost, but may be somewhat larger and contain amenities not financed under the insured program. There

Family and housing characteristics of families who moved into their homes in the U.S. rural areas from 1974 to 1976 by type of mortgage

| Characteristic | Type of mortgage | | | |
|---|------------------|--------|--------|--------------|
| | FmHA | FHA | VA | Conventional |
| Median income dollars .. | 10,433 | 15,083 | 18,652 | 15,679 |
| Median age of family head years .. | 29.7 | 31.5 | 32.7 | 31.1 |
| Ethnic origin: | | | | |
| Black percent .. | 11.2 | 7.9 | 3.9 | 2.6 |
| Spanish American do | 4.6 | 1.1 | 2.1 | 1.2 |
| Other ¹ do | 84.2 | 91.0 | 94.0 | 96.2 |
| Type of sewage disposal: | | | | |
| Public sewer connection percent .. | 43.7 | 48.6 | 53.3 | 26.4 |
| Septic tank or cesspool do | 56.3 | 51.4 | 46.7 | 72.5 |
| Other do | 0 | 0 | 0 | 1.1 |
| Water source: | | | | |
| Public or private system percent .. | 68.9 | 77.9 | 81.2 | 53.5 |
| Individual well do | 30.6 | 20.7 | 18.3 | 41.8 |
| Other do | .5 | 1.4 | .5 | 4.7 |
| Type of heat: | | | | |
| Natural gas percent .. | 26.4 | 39.0 | 46.0 | 29.7 |
| Bottled gas do | 6.3 | 6.6 | 6.5 | 14.3 |
| Fuel oil kerosene do | 11.4 | 13.4 | 10.8 | 22.4 |
| Electricity do | 52.8 | 40.3 | 36.7 | 31.6 |
| Other do | 3.1 | .7 | 0 | 2.0 |
| Median distance to work miles ... | 11.0 | 13.5 | 13.2 | 10.2 |

¹Includes other whites and other ethnic groups.

Source: U.S. Department of Commerce, Bureau of the Census, Annual Housing Survey, 1976 (unpublished data).

is no dollar limit as to the amount of house; however, above-moderate housing is generally limited to housing containing 1,400 square feet or less of living area. This above-moderate program will permit us to provide needed assistance in many rural communities where lenders are not able or willing to make a loan without a guarantee. Applicants will be required to make a downpayment of 3 percent of the first \$25,000 and 5 percent of any amount above that. The loans can be repaid over a period of up to 33 years.

3. Home Ownership Assistance Program (HOAP) for the very low-income family. Under this program a family will pay 25 percent of its income toward principle, interest, taxes, insurance, utilities, and maintenance. The FmHA will make up the balance as a subsidy payment. The program will be limited to areas where rental housing is not feasible as an alternative. Families will be required to have an income at least sufficient to pay the maintenance costs. This authority was recently granted to FmHA by Congress and will be implemented in early 1979.

These programs will enable FmHA to assist families in a wide range of incomes ranging from above-moderate limits of \$20,000 down to very low-income families receiving HOAP. The law also provides that the Government will recover any subsidy granted should the house be sold or the borrower cease to occupy it.

Section 504 Loans and Grants Program is designed to assist very low-income owner-occupants in making repairs to their home to correct health and safety hazards. There is a \$5,000 limit of total assistance to any family and the grants are available only to persons 62 years of age or older. The most predominant use of this program is to bring running water and install bathrooms in homes. Many of the elderly and otherwise disadvantaged families are living in homes that are totally inadequate for human habitation. The loans have been averaging about \$2,500 and the average grant has been about the same.

Section 515 Rural Rental Housing Program makes loans available to individuals, profit or nonprofit corporations, limited partnerships, and public bodies to provide rental housing for

low- and moderate-income families in rural areas. The program initially provided housing only for the elderly; however, we now have the legal authority, and are making every effort, to provide rental housing to low-income families as well.

In many communities, concerned citizens have seen the need for rental housing, have formed a nonprofit corporation, and have borrowed money from the FmHA to provide rental units in their own community for their neighbors and friends, both young and old. For the elderly the units have generally been one- or two-bedroom apartments designed to fit the individual family's needs. The projects are located close to shopping facilities, and often a small recreation or community room is provided within the project for use by the occupants. Projects range in size from 150 units to a single duplex.

The section 515 rental program has been used with the HUD Section 8 deep subsidy program² for several years to provide rental housing for very low-income families. Approximately 25,000 units have been provided in this manner during the past 2½ years. FmHA also recently implemented its own rental assistance program and presently has 23,000 units with this form of deep subsidy.

Section 523 Self-Help Technical Assistance Grants are available for families who cannot afford a home built by the contract method but are willing to join together and build their homes with their own labor. The groups usually consist of six to eight families who, with the guidance of a construction supervisor, build their homes. This self-help effort is a sacrifice on the part of the families; however, they acquire an immediate sweat equity plus a pride of ownership in their homes. The grant is used to fund an organization that provides the guidance needed in forming groups, informs the families of the loan requirements, and supervises the construction. There are currently 52 active grantees in 18 States helping families

²This HUD program provides a subsidy to families that enables them to pay the market rental rate. The family pays 25 percent of its income toward the rental rate, which includes utilities, and HUD makes up the difference.

to build houses under this method. Each participating family receives a section 502 loan to buy the material and to contract for any skilled work that must be obtained, such as plumbing or electrical. The grantees are usually nonprofit corporations; however, a few public bodies such as housing authorities have participated in the program.

Section 524 and Section 523 Rural Housing Site Loans can be made to a nonprofit corporation or public body to buy land and install streets and utilities necessary to develop a desirable subdivision in communities without available building sites. The developed sites can be for self-help housing and for other low- and moderate-income families. We are constantly

reminded that sites are in short supply in the rural areas. This is one authority that can be used to alleviate this problem.

Section 514 and Section 516 Farm Labor Housing Loan and Grant Program can be used by public bodies and nonprofit corporations to provide housing for domestic farm workers. Domestic farm workers are people who make a substantial portion of their income from work on farms. This may be for migrant or for permanent farm workers in an area. There is a special need in certain parts of the country for this type of housing, and our current 1979 fiscal-year budget reflects increased funding to meet these needs.

A GUIDE TO HOUSING REHABILITATION PROGRAMS

This booklet released in August 1978 by the U.S. Department of Housing and Urban Development, provides summary information on the Department's housing rehabilitation assistance programs. Twenty-two programs are described, including information on the nature of the program, eligibility requirements, and

where to get additional information and application forms. Copies of the guide may be obtained from the Office of Neighborhoods, Voluntary Associations, and Consumer Protection, Department of Housing and Urban Development, Washington, D.C. 20410, or by calling 202/755-6996.

THE PRESIDENT'S NATIONAL URBAN POLICY REPORT

The First Biennial Report on National Urban Policy has been released by the U.S. Department of Housing and Urban Development. The report focuses on urban problems, as well as efforts and issues related to the development of national urban policy. The first portions summarize trends in the distribution of population and economic activity; housing and community development problems; and concerns on energy and resource availability, population, lifestyles, and employment. The remainder covers urban policy development issues, including existing

efforts and impacts by local, State, and Federal Governments and the private sector; the principles, objectives, and strategies which constitute the urban policy of the Carter Administration; and recommendations for changes in existing programs and proposed program initiatives.

The report, dated August 1978, is available from Urban Policy Staff, Office of Community Planning and Development, Room 7144, U.S. Department of Housing and Urban Development, Washington, D.C. 20410.

STATUS OF HOUSING IN NONMETROPOLITAN AREAS¹

by Ronald Bird¹

Current Situation

Housing characteristics. Housing in non-metropolitan areas² differs from that in metropolitan areas in several important respects. Owner occupancy is more common and single unit structures are more prevalent in nonmetro than in metro areas. In 1976, 88 percent of the occupied units in nonmetro areas were single units compared with 65 percent in metro areas. Rental units are more apt to be a single unit structure; almost two-thirds of all nonmetro rentals were single unit structures compared with one-fourth in the metropolitan areas. Value and rents are only three-fourths as high; also, in nonmetro areas 1 out of 12 renters paid no rent, at least in cash, compared with 1 in 100 in metro areas.

Between 1970 and 1976, there was a rapid increase in single-person households in both areas; the number of single-person households rose 37 percent in nonmetro areas and 32 percent in metro areas. In nonmetro areas the increase in single-person households was more rapid among renters, but in metro areas the increase was more rapid among owner occupants. Households with two or more persons increased 17 percent in nonmetro areas and 11 percent in metro areas.

Although there has been a vast improvement in housing conditions in areas in recent years, housing conditions by almost any measure of adequacy are poorer in nonmetro than metro areas. For example, in 1976, only 32 percent of U.S. households were located in nonmetro areas, but these areas accounted for 44 percent of the 5.1 million homes that lacked complete plumbing or were crowded (more than one person per room), and 59 percent of the 1.2

million homes that lacked a complete kitchen. This incidence of bad housing is closely related to household income and is highest among the very poor. For example, 41 percent of the nonmetropolitan bad housing was occupied by households with incomes of less than \$5,000 in 1976, but households with incomes this low represented only 24 percent of the total households. Even among higher income groups, the incidence of bad housing was relatively high. Households with incomes of \$10,000 or more occupied 31 percent of the bad housing.

One deterrent to housing improvement since 1970 has been the rapid rise in housing prices which has discouraged moves into new housing. Between 1970 and 1976, housing prices in constant dollars increased 47 percent in nonmetro areas compared with 27 percent in metro areas. At the same time, there was a more rapid rise in incomes of homeowners in nonmetro areas than in metro areas—7 percent compared with 1 percent.

Rents have not risen as rapidly as housing prices. The increase in rents based on constant dollars was about the same in both areas—about 8 percent from 1970 to 1976. Unfortunately, the real incomes of renters decreased during this time period—about 8 percent in nonmetro areas and 13 percent in metro areas. The reason for this decrease is probably due to a shift of more low income households (especially young households) into the rental category.

Housing market. Since World War II the industry has built housing faster than new households have been formed. The only other decades before World War II in which housing starts exceeded new household formations were the 1890's and the 1920's. This expansion has resulted in a continuous improvement in the quality of housing as older, dilapidated dwellings have been abandoned. In 1950, for example, 58 percent of the occupied units in nonmetro areas lacked complete plumbing and 19 percent were crowded. By the fall of 1976, units lacking complete plumbing and those that were crowded each accounted for 5 percent of the total.

¹ Leader, Housing Programs; Economics, Statistics, and Cooperatives Service, USDA. Condensed from a paper presented at the Food and Agricultural Outlook Conference in November 1978, at Washington, D.C. Complete copies are available from the Consumer and Food Economics Institute (see inside cover of this issue for address).

² Counties which do not include a city of over 50,000 inhabitants.

During the 1950's and 1960's, the housing stock increased more rapidly in the metropolitan than in the nonmetropolitan areas. But during the 1970's, the housing stock increased more rapidly in the nonmetropolitan areas. In the 1950's about 420,000 units were built annually; in nonmetro areas, this number increased to 475,000 annually during the 1960's, and then expanded rapidly to 650,000 units during the 1970's. In 1978, about 700,000 units were produced—about 14 percent higher than in 1977. While the number of new units added each year is small compared with the existing housing stock, the cumulative number of new homes added since 1950 totals more than 14 million units and represents over 53 percent of the housing stock in nonmetro areas today.

During the 1970's, 1 out of 4 new homes in nonmetropolitan areas was a mobile home, compared with 1 in 12 in the metropolitan areas. In 1978, about one out of every five new homes in nonmetro areas was a mobile home. A major reason for the popularity of the mobile home is its price, which averaged \$14,000 in 1977 compared with \$37,000 for the conventional dwelling. These prices do not include the price of the lot; but the price of the mobile home includes furniture. These homes are providing housing for many of the low-income households in nonmetro areas. Of the 1.5 million mobile homes in nonmetro areas bought since 1970, half of the purchasers had incomes less than \$10,000 a year. Among conventional home buyers, only one-fourth had incomes this low.

Most housing is built or improved by private citizens contacting their own builders, negotiating on their own for credit, and setting up their own repayment schedule with lenders. Hence, the availability of private credit plays a major role in determining how many homes are built or improved in the United States. Governmental help has played, and is playing, an important role in helping to improve loan terms, in establishing loan criteria, and in helping to direct funds to the needy. The extent of this help has varied from decade to decade. During the 1950's, the Federal Government helped with credit in the construction of about 24 percent of the units built in nonmetro areas, during the 1960's

about 18 percent, and during the 1970's about 27 percent.

Housing loans made by banks and other lending institutions but insured or guaranteed by the Federal Housing Administration or the Veterans Administration were the most common type of Federal help to nonmetro households during the 1950's and 1960's. The Farmers Home Administration became the major insurer during the 1970's.

The role of Farmers Home Administration (FmHA) has changed markedly in the past 30 years. During the 1950's, when FmHA could make loans only to farmers to improve their housing, this agency helped in the construction of about 2,000 units annually. During the 1960's, its program was expanded to include rural nonfarm households in the open country and places and towns of less than 5,500 population. As a result, FmHA's financial assistance helped in the construction of about 16,000 homes annually. And during the 1970's, with increased lending authority and the adoption of the interest credit subsidies, the FmHA is helping in the construction of about 75,000 homes annually. Its current programs include many types of loans, such as ownership loans, loans to construct rental housing, farm labor housing loans, and repair loans (see p. 17).

Problem Areas

Although families living in rural areas have never been as well housed as they are today, there are problems yet to be solved, such as finding alternative sources of credit, improving housing for specific population groups (the blacks, the elderly, and single persons), and helping families lower or control shelter costs other than those needed to purchase or rent a home, especially energy costs.

Credit needs. For most families, buying a home is the largest single purchase they will ever make. And for most home buyers, a large part of the home purchase price is met by placing a long-term, amortized mortgage on their property. When monetary restraints exist, and mortgage money is relatively scarce, higher interest rates, larger downpayments, and shorter terms to maturity are imposed; home sales decline and home builders cut back on construction. In 1969 and again in 1974,

serious slumps in home sales and construction were attributed to the "credit crunch."

While changes in monetary policy have a national impact on the supply of home mortgage funds, there has existed a chronic deficiency of home mortgage funds in the more rural sections of the nonmetro areas. This may partly account for the relatively large number of high income nonmetro residents living in inadequate housing. Local banks are the only accessible source of credit in many rural counties, and such banks rely primarily on local deposits from which they try to meet credit needs of a vast array of borrowers. Under such circumstances banks invest only a limited amount of their funds in long-term housing loans—usually about 20 percent.

Nationally, savings and loan (S&L) associations make about half of all housing loans for single-family homes and offer somewhat more favorable credit terms than do many other lenders. However, this source of credit is not yet available to many rural people. Of the 865 most rural counties in the nonmetro areas, 805 do not have an S&L operating within their borders.

The Farmers Home Administration (FmHA) is designed to help close this gap in home mortgage credit in designated rural areas, but FmHA activities would have to be greatly expanded in the more rural counties if available housing credit were to be equalized between the larger metropolitan counties and the more rural counties. In 1975, outstanding housing loans of commercial banks, savings and loan associations, and the FmHA averaged \$498 per capita in the most rural counties of the nonmetro areas compared with \$1,490 per capita in the larger metropolitan counties. Much of this difference can be credited to the lack of savings and loan association loans in many rural counties. Outstanding S&L's housing loans on single-family homes averaged only \$49 per capita in the most rural counties compared with \$1,213 in the larger metropolitan counties. Bank lending showed a comparatively smaller difference—\$280 in the rural counties and \$371 in the larger metropolitan counties. Some of this difference is due to lower incomes and lower prices of housing in nonmetro compared with metro areas.

FmHA loans are covering part of this rural credit gap. Outstanding FmHA loans per capita on single-family units were \$169 in the most rural counties and only \$7 in the larger metropolitan counties in 1975. In the rural counties, FmHA held 34 percent of the housing loans.

A gradual expansion of S&L's lending activities coupled with an expanding lending program of FmHA to low- and moderate-income families is bringing about some improvement. However, there still remains a long way to go before home mortgage credit is as accessible in the more rural areas as it is in more urban areas.

Housing problems of special population groups. Not all groups have shared equitably in the housing improvements of the 1970's. Groups for which progress has lagged include blacks, the elderly, and the single-person households. Blacks occupied 27 percent of the housing that lacked complete plumbing or was crowded in nonmetro areas in 1976, up from 20 percent in 1970. But blacks occupied only 7 percent of all nonmetro housing in both 1970 and 1976.

Among the elderly or the single-person household, crowding is not a problem. However, in 1976 the elderly occupied 35 percent of the units that lacked complete plumbing compared with 32 percent in 1970. Single-person households—many of whom are elderly—occupied 36 percent of the housing that lacked complete plumbing in 1976, well above the 26 percent in 1970. The rapid increase in young, single-person households, many of whom have low incomes, has contributed to the greater prominence of poor housing among single-person households.

Reasons for the lag in the improvement in housing for these groups are many. The relatively low level of income is no doubt a major factor. But their limited access to credit, again partly due to their limited income, is of considerable importance. An analysis of the 1976 Annual Housing Survey data shows that only 3 percent of all rural households having conventional mortgages were black, but among those mortgages insured by the Federal Housing Administration, 8 percent were held by black households, and among those financed with assistance from the Farmers

Home Administration, 11 percent were held by blacks.

Impact of rising energy costs. Rents and mortgage payments are becoming a smaller part of outlays for shelter, while heating, cooling, water, waste disposal, taxes, and a multitude of other costs are rising rapidly. Current programs exist to help a household gain access to suitable housing, but the occupants now face greater difficulties in meeting these other bills. Efforts to conserve energy through weatherization of housing and developing alternative energy sources such as solar energy are means being used to minimize the impact of rising energy

costs. Despite these efforts, the rising energy costs pose a problem of growing importance in the Nation's efforts to provide more adequate housing in nonmetropolitan areas.

Sources: Spurlock, H. H., and Bird, R., 1978, Housing credit: A rural-urban comparison, *Rural Development Research Report No. 6*, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service. U.S. Department of Commerce, *Construction Reviews*, 1970 through 1978. U.S. Department of Commerce and U.S. Department of Housing and Urban Development, 1978, tapes from the 1976 Annual Housing Survey.

SOME NEW USDA PUBLICATIONS

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- **LIST OF AVAILABLE PUBLICATIONS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.** List 11. March 1978. \$2.50.

Single copies of the following are available free from the U.S. Department of Agriculture. Please address your request to the office indicated:

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- **BETTER LAWNS—ESTABLISHMENT, MAINTENANCE, RENOVATION, LAWN PROBLEMS, GRASSES.** G 51. Revised April 1978.
- **GROWING VEGETABLES IN THE HOME GARDEN.** G 202. Revised June 1978.

From Economics, Statistics, and Cooperatives Service, Publications Unit, Room 0054, South Building, Washington, D.C. 20250:

- **FOOD STAMP REDEMPTIONS: THEIR IMPACT ON FOOD SALES BY REGION, SIZE, AND KIND OF PARTICIPATING FOOD STORES—FISCAL 1976.** AER 410. August 1978.
- **BALANCE SHEET OF THE FARMING SECTOR, 1978.** AIB 416, Supplement No. 1. October 1978.
- **FARM POPULATION ESTIMATES FOR 1977.** RDRR 4. September 1978.

From Food and Nutrition Service, Information Division, Washington, D.C. 20250:

- **SCHOOL BREAKFAST MENU PLANNING GUIDE.** FNS 7. Revised September 1978.

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THREE BUDGETS FOR A RETIRED COUPLE, AUTUMN 1977

The Bureau of Labor Statistics, U.S. Department of Labor, has updated to autumn 1977 its three hypothetical annual budgets for a retired couple and related area indexes that can be used to compare the cost of these budgets in selected urban areas. This updating reflects changes in prices between autumn 1976 and autumn 1977.

In the autumn of 1977, the estimated U.S. average annual cost of the lower level budget for an urban retired couple, excluding personal income taxes, amounted to \$5,031. At the intermediate and higher levels, the budget costs amounted to \$7,198 and \$10,711, respectively. Costs for all the budgets are about 7.0 percent greater than the estimated budget costs for the autumn of 1976. The costs of the budgets are generally lowest in nonmetropolitan areas and in the southeastern cities and highest in Anchorage, Honolulu, and northeastern and western cities.

The increase in the food component from autumn 1976 to autumn 1977 was about 6.3

percent at each budget level, compared with an increase of 1 percent or less a year earlier. Medical care costs rose the most—approximately 10 percent for each budget level. The increase in housing costs ranged from 8.2 percent at the lower budget level to 7.7 percent at the higher budget level. Transportation costs increased about 4.7 percent for each budget level, compared with a 9 percent rise a year earlier when transportation was the fastest rising budget component.

The updated budget costs represent the costs at autumn 1977 prices of three hypothetical lists of goods and services that were specified in the mid-1960's to portray three relative levels of living—simply termed lower, intermediate, and higher—for a retired couple. The cost of the lower budget is not intended to represent the income necessary for subsistence at the poverty level, but simply represents a level relatively lower than the intermediate budget.

Summary of annual budgets for a retired couple at 3 levels of living, urban United States, autumn 1977

| Component | Lower budget | Intermediate budget | Higher budget |
|---------------------------------|--------------|---------------------|---------------|
| Total budget ¹ | \$5,031 | \$7,198 | \$10,711 |
| Total family consumption | 4,815 | 6,765 | 9,898 |
| Food | 1,535 | 2,035 | 2,554 |
| Housing | 1,745 | 2,518 | 3,936 |
| Transportation | 337 | 658 | 1,215 |
| Clothing | 214 | 360 | 555 |
| Personal care | 146 | 214 | 313 |
| Medical care ² | 628 | 632 | 637 |
| Other family consumption | 209 | 347 | 687 |
| Other items | 217 | 433 | 813 |

¹Beginning with the autumn 1973 updating of the budgets for a retired couple, the total budget is defined as the sum of "total family consumption" and "other items." Income taxes are not included in the total budgets.

²The autumn 1977 cost estimates for medical care contain a preliminary estimate for "out-of-pocket" costs for Medicare.

Note: Because of rounding, sums of individual items may not equal totals.

Source: U.S. Department of Labor, Bureau of Labor Statistics, 1978, Three budgets for a retired couple, autumn 1977, News, USDL 78-698.

Cost of food at home estimated for food plans at 4 cost levels, December 1978, U.S. average¹

| Sex-age groups | Cost for 1 week | | | | Cost for 1 month | | | |
|---------------------------------------|------------------------------|------------------|------------------------|-----------------|------------------------------|------------------|------------------------|-----------------|
| | Thrifty plan ² | Low-cost plan | Moderate- cost plan | Liberal plan | Thrifty plan ² | Low-cost plan | Moderate- cost plan | Liberal plan |
| | | | | | | | | |
| FAMILIES | | | | | | | | |
| Family of 2: ³ | | | | | | | | |
| 20-54 years | 26.40 | 34.40 | 43.20 | 51.70 | 114.50 | 149.30 | 187.10 | 224.10 |
| 55 years and over | 23.60 | 30.60 | 37.90 | 45.20 | 102.60 | 132.80 | 164.60 | 196.20 |
| Family of 4: | | | | | | | | |
| Couple, 20-54 years and children-- | | | | | | | | |
| 1-2 and 3-5 years | 37.30 | 48.00 | 60.00 | 71.70 | 161.50 | 208.10 | 259.70 | 310.80 |
| 6-8 and 9-11 years | 44.80 | 57.90 | 72.70 | 87.00 | 194.30 | 251.00 | 314.90 | 376.80 |
| INDIVIDUALS ⁴ | | | | | | | | |
| Child: | | | | | | | | |
| 7 months to 1 year | 5.30 | 6.40 | 7.90 | 9.30 | 23.00 | 27.90 | 34.20 | 40.30 |
| 1-2 years | 6.00 | 7.60 | 9.40 | 11.20 | 26.00 | 33.00 | 40.80 | 48.40 |
| 3-5 years | 7.30 | 9.10 | 11.30 | 13.50 | 31.40 | 39.40 | 48.80 | 58.70 |
| 6-8 years | 9.20 | 11.80 | 14.80 | 17.80 | 40.00 | 51.30 | 64.30 | 76.90 |
| 9-11 years | 11.60 | 14.80 | 18.60 | 22.20 | 50.20 | 64.00 | 80.50 | 96.20 |
| Male: | | | | | | | | |
| 12-14 years | 12.40 | 15.70 | 19.70 | 23.60 | 53.60 | 68.20 | 85.40 | 102.10 |
| 15-19 years | 13.60 | 17.40 | 21.90 | 26.20 | 59.10 | 75.60 | 94.70 | 113.70 |
| 20-54 years | 13.20 | 17.30 | 21.80 | 26.20 | 57.30 | 74.90 | 94.50 | 113.60 |
| 55 years and over | 11.70 | 15.20 | 18.90 | 22.70 | 50.90 | 66.00 | 82.10 | 98.50 |
| Female: | | | | | | | | |
| 12-19 years | 11.10 | 14.10 | 17.50 | 20.80 | 47.90 | 61.10 | 75.70 | 90.10 |
| 20-54 years | 10.80 | 14.00 | 17.50 | 20.80 | 46.80 | 60.80 | 75.60 | 90.10 |
| 55 years and over | 9.80 | 12.60 | 15.60 | 18.40 | 42.40 | 54.70 | 67.50 | 79.90 |
| Pregnant | 13.60 | 17.30 | 21.30 | 25.30 | 58.80 | 75.10 | 92.30 | 109.50 |
| Nursing | 14.40 | 18.40 | 22.80 | 27.10 | 62.50 | 79.70 | 99.00 | 117.40 |

¹Assumes that food for all meals and snacks is purchased at the store and prepared at home. Estimates for each plan were computed from quantities of foods published in the Winter 1976 (thrifty plan) and Winter 1975 (low-cost, moderate-cost, and liberal plans) issues of *Family Economics Review*. The costs of the food plans were first estimated using prices paid in 1965-66 by households from USDA's Household Food Consumption Survey with food costs at 4 selected levels. USDA updates these survey prices to estimate the current costs for the food plans using information from the Bureau of Labor Statistics' "Estimated Retail Food Prices by Cities" from 1965-66 to 1977 and "CPI Detailed Report," tables 3 and 9, after 1977.

²Coupon allotment in the Food Stamp Program based on this food plan.

³10 percent added for family size adjustment. See footnote 4.

⁴The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person--add 20 percent; 2-person--add 10 percent; 3-person--add 5 percent; 5-or-6-person--subtract 5 percent; 7-or-more-person--subtract 10 percent.

CONSUMER PRICES

Consumer Price Index for all urban consumers

(1967 = 100)

| Group | Dec. 1978 | Nov. 1978 | Oct. 1978 | Dec. 1977 |
|--|--------------|--------------|--------------|--------------|
| All items | 202.9 | 202.0 | 200.9 | 186.1 |
| Food | 219.4 | 217.8 | 216.8 | 196.3 |
| Food at home | 217.9 | 216.1 | 215.4 | 193.7 |
| Food away from home | 227.4 | 225.9 | 224.6 | 206.2 |
| Housing | 211.5 | 210.6 | 209.5 | 195.7 |
| Shelter | 221.0 | 220.1 | 218.6 | 198.2 |
| Rent | 169.5 | 168.5 | 167.4 | 157.9 |
| Homeownership | 239.5 | 238.8 | 237.0 | 213.0 |
| Fuel and other utilities . | 219.9 | 218.5 | 220.1 | 207.6 |
| Fuel oil, coal, and bottled gas | 311.8 | 306.1 | 300.1 | 291.9 |
| Gas (piped) and electricity | 236.2 | 234.9 | 240.0 | 218.9 |
| Household furnishings and operation | 184.0 | 183.0 | 181.9 | 181.1 |
| Apparel and upkeep | 163.2 | 164.1 | 163.3 | 158.2 |
| Men's and boys' apparel .. | 160.2 | 160.1 | 159.1 | 157.8 |
| Women's and girls' apparel | 151.7 | 154.1 | 154.0 | 150.4 |
| Footwear | 169.6 | 169.1 | 167.8 | 159.6 |
| Transportation | 192.6 | 191.4 | 189.7 | 178.8 |
| Private | 192.5 | 191.1 | 189.4 | 178.0 |
| Public | 189.1 | 189.7 | 189.3 | 185.7 |
| Medical care | 227.8 | 227.0 | 224.7 | 209.3 |
| Entertainment | 180.9 | 179.5 | 179.3 | -- |
| Other goods and services ... | 189.1 | 188.8 | 188.3 | 162.7 |
| Personal care | 187.3 | 186.8 | 185.6 | 176.3 |

Source: U.S. Department of Labor, Bureau of Labor Statistics.

CHARACTERISTICS OF NEW HOUSING

According to a report released jointly by the Bureau of the Census of the U.S. Department of Commerce and the U.S. Department of Housing and Urban Development, new one-family houses completed in 1977 tended to be larger and contained more amenities than those completed in 1976. More of the houses completed in 1977 had 1,600 or more square feet of living area, central air-conditioning, two or more bathrooms, and at least one fireplace.

The report, released in August 1978, also includes data on the characteristics of single-family and multifamily houses completed, single-family houses sold, and contractor-built houses started.

Source: U.S. Department of Commerce, Bureau of the Census, 1978, Characteristics of new housing: 1977, *Construction Reports*, Series C25-77-13.

FAMILY ECONOMICS REVIEW
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